FACT SHEET
AND
STATEMENT OF BASIS

RICHMOND CITY

UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT NO. UT0020907

FACILITY CONTACT:

Responsible Official: Mike Hall,
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DESCRIPTION OF FACILITY:

The Richmond City Wastewater Treatment Facility (facility) is located approximately one mile west of Richmond City, just north of highway 142. This facility was originally constructed in 1972 as a total containment lagoon with a hydraulic design capacity of 0.5 MGD and population equivalent of 1350 people. The Facility currently serves approximately 2200 people and has been operating as a discharging facility for the past several years due to exceedences in capacity. The physical treatment facility consists of an influent bar screen, 6" influent Parshall flume, influent and effluent electronic flow meters and recorder, comminutor, 4 facultative lagoon cells, outlet building, Palmer Bowlus effluent flume, and sodium hypochlorite disinfection. The facility is fully contained within a chain-link fence. Richmond City also owns property adjacent to the existing facility that is intended to be used for future expansion.

Calculations of current hydraulic and organic capacities are as follows:

Hydraulic capacity. The State of Utah waste water rules require a detention time of 120 days during the winter and 60 days during the summer for facultative lagoon systems. The maximum volume the Richmond lagoons can hold is approximately 52 million gallons. Therefore, the existing hydraulic capacity is approximately 433,000 gpd in the winter and 866,000 gpd in the summer. Although Richmond has submitted all the required Discharge Monitoring Reports (DMR)s over the past several years, when the facility does not discharge, no flows have been reported. Based on the incomplete information that we have, influent flow averaged approximately 250,000 gpd, demonstrating that the facility has adequate hydraulic capacity.

Organic capacity. The State of Utah waste water rules require that a facultative lagoon's primary treatment cell be limited to loadings of 35 lbs of biochemical oxygen demand (BOD) per surface acre. The first two cells (with an area of 12.4 acres) are being operated in parallel as primary treatment, creating an organic treatment capacity of approximately 434 lbs of BOD per day. Influent BOD values reported values have been highly variable, and extremely high for a lagoon of this type. Since these are grab samples, it is unlikely that they are true representation of the actual loadings. In any case, it appears the facility is organically overloaded. It is unlikely that Richmond City will be able to meet effluent limitations set forth in the renewal permit for BOD without significant facility changes. As a result, the City is in the process of planning for and designing a new Membrane Bioreactor Facility in order to meet the discharge requirements for this facility. This permit will remain in effect until the new facility is built, at which time a new permit will be developed in order to more accurately describe the conditions at the facility.

DESCRIPTION OF DISCHARGE:

Discharge is to an unnamed irrigation ditch to the Cub River. Outfall 001 is located at an approximate latitude 41° 55' 25" N and longitude 111° 49' 45" W and has STORET #490372.

There have been significant violations of the previous permit effluent limitations for BOD (as discussed above, *DESCRIPTION OF FACILITY*), total suspended solids (TSS), fecal coliforms (FC) and total coliforms (TC) (see ADDENDUM). Dissolved Oxygen (DO), pH and total residual chlorine (TRC) have not been a problem at this facility.

RECEIVING WATER CLASSIFICATION:

The Cub River is classified 2B, 3B, and 4. According to Utah Administrative Code (UAC) R317-2-6 the use designations are as follows:

Class 2B	Protected for secondary contact recreation such as boating, wading, or similar uses.
Class 3B	Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
Class 4	Protected for agriculture use including irrigation of crops and stock watering.

EFFLUENT LIMITATIONS, SELF-MONITORING AND REPORTING REQUIREMENTS:

Permit effluent limitations are summarized below:

Parameter, units	30-day average	7-day average	Daily minimum	Daily maximum
BOD_5, mg/L	25	35	NA	NA
BOD_5 Minimum % Removal	85 %	NA	NA	NA
TSS, mg/L	25	35	NA	NA
TSS Minimum % Removal	85%	NA	NA	NA
E. coli, #/100ml	126	157	NA	NA
pH, SU	NA	NA	6.5	9.0
TRC, mg/L	NA	NA	NA	0.419
DO, mg/L	NA	NA	5.5	NA
Oil/Grease, mg/L	NA	NA	NA	Visual/10
Total Phosphorous, mg/L	NA	NA	NA	Report

Monitoring and Reporting requirements are summarized below:

Parameter	Sampling Frequency	Sample Type	Units
Influent flow	Continuous	Recorder	MGD
Effluent flow	Continuous	Recorder	MGD
BOD_5, Influent	Monthly	Grab	mg/L
BOD_5, Effluent	Monthly	Grab	mg/L
TSS, Influent	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
% removal, TSS/BOD	Monthly	Calculated	NA
E. coli.	Monthly	Grab	#/100 ml
pH	Monthly	Grab	SU
TRC	Daily	Grab	mg/L
DO	Monthly	Grab	mg/L
Oil/Grease /a	Sheen observed	Grab	mg/L
Total Phosphorous	Monthly	Grab	mg/L

/a A visual monitoring will be conducted monthly for an oil and grease sheen. If a sheen is observed, then a grab sample shall be taken and shall not exceed 10 mg/L.

NA Not applicable

BASIS FOR EFFLUENT LIMITATIONS:
Limitations on TSS, BOD, FC, TC, pH and percent removal for TSS and BOD are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*.

TRC and DO are water quality limited and are based on a Wasteload Analysis (see ADDENDUM).

The Wasteload Analysis indicates that seasonal ammonia limits in the range of 52.6 mg/L – 128.3 mg/L should be applied (see ADDENDUM), however, since these limits are substantially higher than what is expected in the discharge, there will be no effluent limitations or monitoring requirements for this parameter.

The above limitations should be sufficiently protective of water quality in order to meet State water quality standards in the receiving waters.

WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS:
As part of a nationwide effort to control toxic discharges, biomonitoring requirements are being included in permits for facilities where effluent toxicity is an existing or potential concern. In Utah, this is done in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (Biomonitoring).* Authority to require effluent biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3* and *Water Quality Standards, UAC R317-2-5 and R317-2-7.2*.

Based on said Utah guidelines, the permittee is not a major municipal discharger and has not been required to develop an industrial pretreatment program. This facility has no significant industrial or categorical industrial users, and a reasonable potential for toxicity does not exist. In the event of any unforseen toxicity occurring at the facility the permit does contain a toxicity limitation-reopener provision.

BIOSOLIDS DISPOSAL REQUIREMENTS:
As required by the 1987 amendments to the Federal *Clean Water Act*, EPA has established toxic contaminant criteria and other requirements for sewage sludge use and disposal by works treating domestic sewage. These regulations are found in *Title 40* of the *Code of Federal Regulations, Part 503.* The biosolids (sludge) management program was delegated to the State of Utah on June 14, 1996. The 503 regulations are implemented by the issuance of permits, as needed and appropriate.

Because the permitted facility is a lagoon, there is no regular biosolids production. Therefore, the requirements of 503 do not apply unless or until sludge is removed from the bottom of the lagoon and used or disposed of in some way. When planning biosolids removal, the permittee should contact the DWQ for guidance.

PRETREATMENT REQUIREMENTS:
Although the permittee had a developed State-approved pretreatment program it is no longer designated for pretreatment program development because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, industrial discharges comprise less than 1

percent of the flow through the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of the POTW's UPDES permit limits. If any of these conditions change the permit could be modified to include the requirement of a pretreatment program.

Any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to *Section 307* of the *Clean Water Act*, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in *40 CFR 403* and the State Pretreatment Requirements found in *UAC R317-8-8*.

It is recommended that the permittee perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions of *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present local limits are sufficiently protective, or that they must be revised or developed. It is recommended that the permittee submit for review any local limits that are developed to the Division of Water Quality for review.

STORM WATER REQUIREMENTS:

A treatment facility treating domestic sewage or any other sewage sludge, a wastewater treatment device or system used in the storage, treatment, recycling and reclamation of municipal sewage, and lands dedicated to the disposal of sewage sludge that are located within the confines of the facility is required to submit a Notice of Intent (NOI) specifically for the Utah Pollutant Discharge Elimination System Multi Sector General Permit if the treatment facility holds an approved pretreatment program as described in *40CFR Part 403,* or has a design flow above 1 MGD.

The permittee does not meet either of these criteria required for permit coverage, thus there is no need for a UPDES Storm Water Permit at this time.

TMDL REQUIREMENTS:

The Richmond Lagoons discharge to a segment of the Cub River that is on the 303(d) list for Total Phosphorous (TP). A Total Maximum Daily Load for total phosphorous was completed for the Cub River on December 23, 1997. The TMDL indicated that the lagoons were contributing a TP load of approximately 2.3 kg/day and recommended a load reduction to 0.23 kg/day TP. The city is currently constructing a membrane bioreactor wastewater plant to achieve these more stringent phosphorous limits. When construction is complete, the current permit will be reopened to include TP limits.

This facility ultimately discharges to Cutler Reservoir which is listed on Utah's 2006 303(d) list of impaired waterbodies as defined in the Clean Water Act. As required under federal regulations, a total maximum daily load (TMDL) will be developed for all 303(d) listed waters. Specifically, Cutler Reservoir has been identified as impaired for total phosphorous and dissolved oxygen. Currently, a TMDL evaluation is underway for the reservoir. The TMDL process may result in pollutant load reductions and wasteload allocations for either of these constituents. Wasteload allocations would then be translated to effluent limits in UPDES permits. It is therefore strongly recommended that the facilities' staff participate in the TMDL process. It is also being required that the facility self-monitor TP on a monthly basis in order to better quantify the phosphorus loading to

the reservoir. The TMDL staff at the Division of Water Quality will be responsible for scheduling and notifying appropriate facility personnel regarding TMDL meetings. In addition, please contact your UPDES permit writer for information on scheduled TMDL meetings.

Additionally, the Cutler Reservoir and Cub River TMDL's are currently scheduled for revision by 2009.

SIGNIFICANT PERMIT CHANGES:
The limit for TRC has been changed based upon new flow data for the Cub River.

PERMIT DURATION:
It is recommended that this permit be effective for a duration of five (5) years.

Drafted by Lonnie Shull
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Utah Division of Water Quality
Drafted July 8, 2008
Revised August 4, 2008